

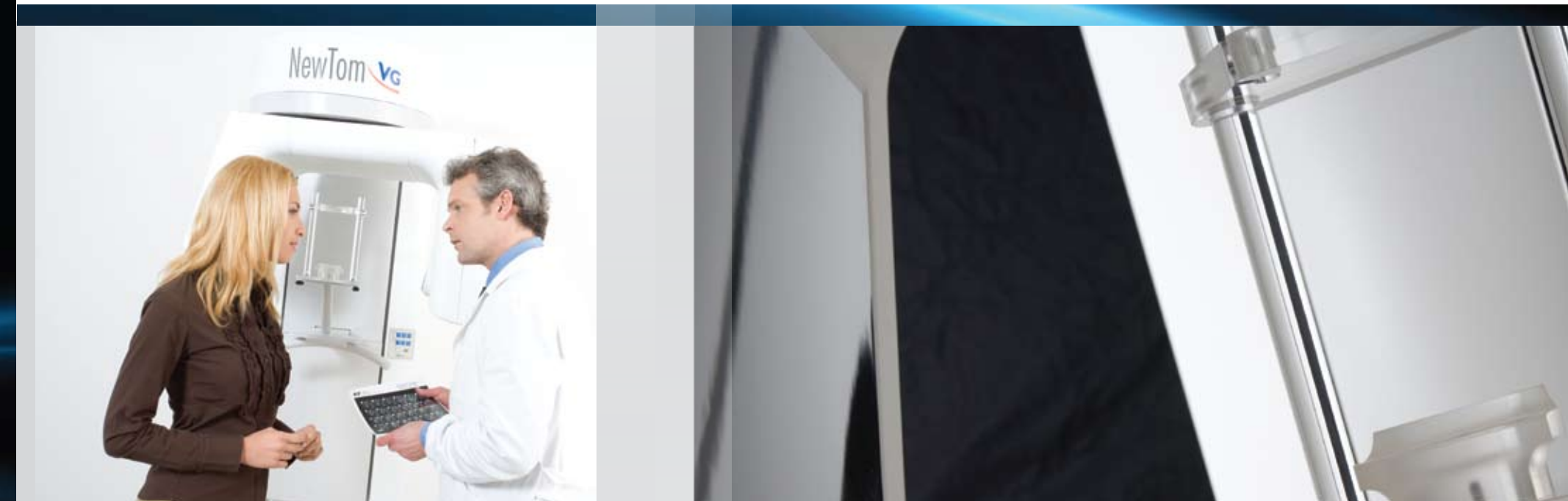
NewTom Cone Beam 3D Imaging Systems

Provide Today's Standard of Care



*Make Your Practice
the Superior Practice*

*NewTom Sets the Standard
in 3D Maxillofacial Imaging*



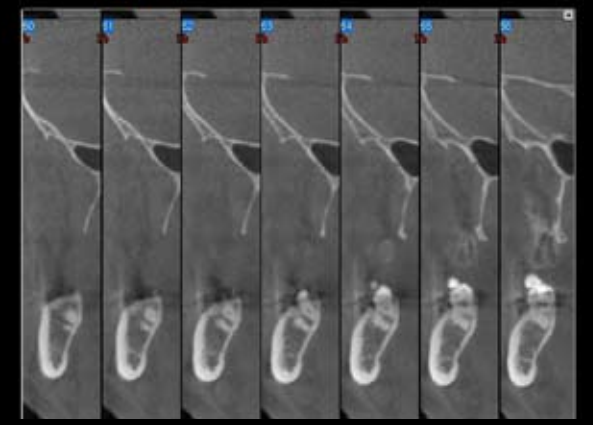
The Global Market Leader

The Inventors of Cone Beam 3D

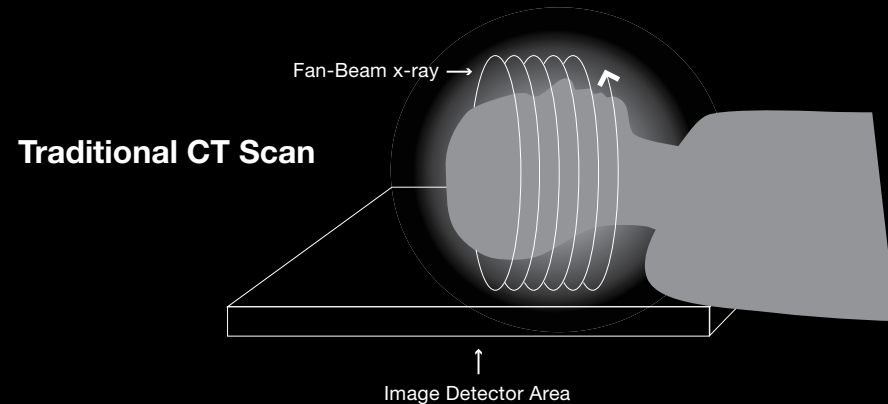
In 1997, QR srl, a subsidiary of AFP Imaging, developed the first generation of dento-maxillofacial Cone Beam systems. **This invention, borne from a need for superior 3D imaging, remains today's undisputed industry leader in 3D imaging technology.** QR srl and AFP Imaging have consistently provided the highest quality 3D images, ensuring the very best for their customers today, and in the future.

*360 Degree Imaging
No Image Scatter or Artifacts*

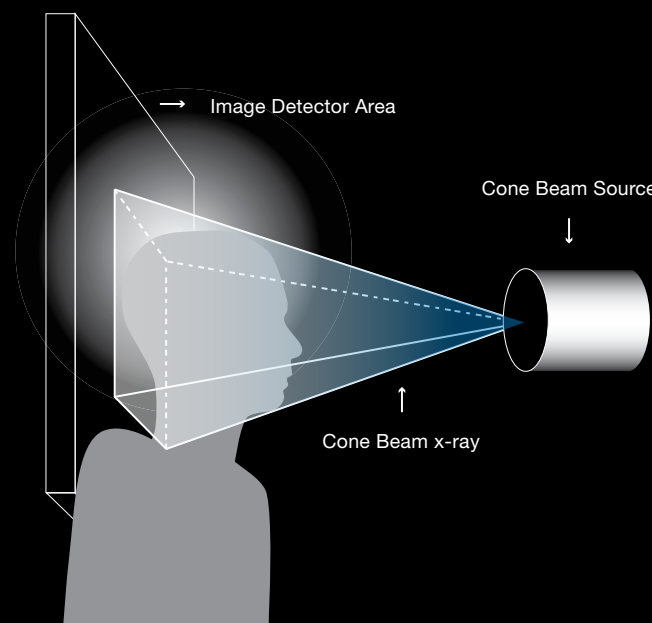
*Smallest Possible Focal Spot and Rotating Anode
Provide the Clearest Images*



Less Radiation than Traditional CT Scans



Cone Beam 3D Scan

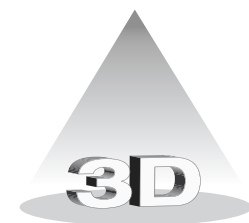


Cone Beam 3D vs CT Imaging

Traditional CT (CAT scan) uses a narrow fan beam that rotates around the patient acquiring thin axial slices with each revolution. In order to image a section of anatomy, many rotations must be completed. Due to these repeated rotations, traditional CT emits a high radiation dose and leaves a gap or break in information between each rotation. Software must fill in, or guess the missing information.

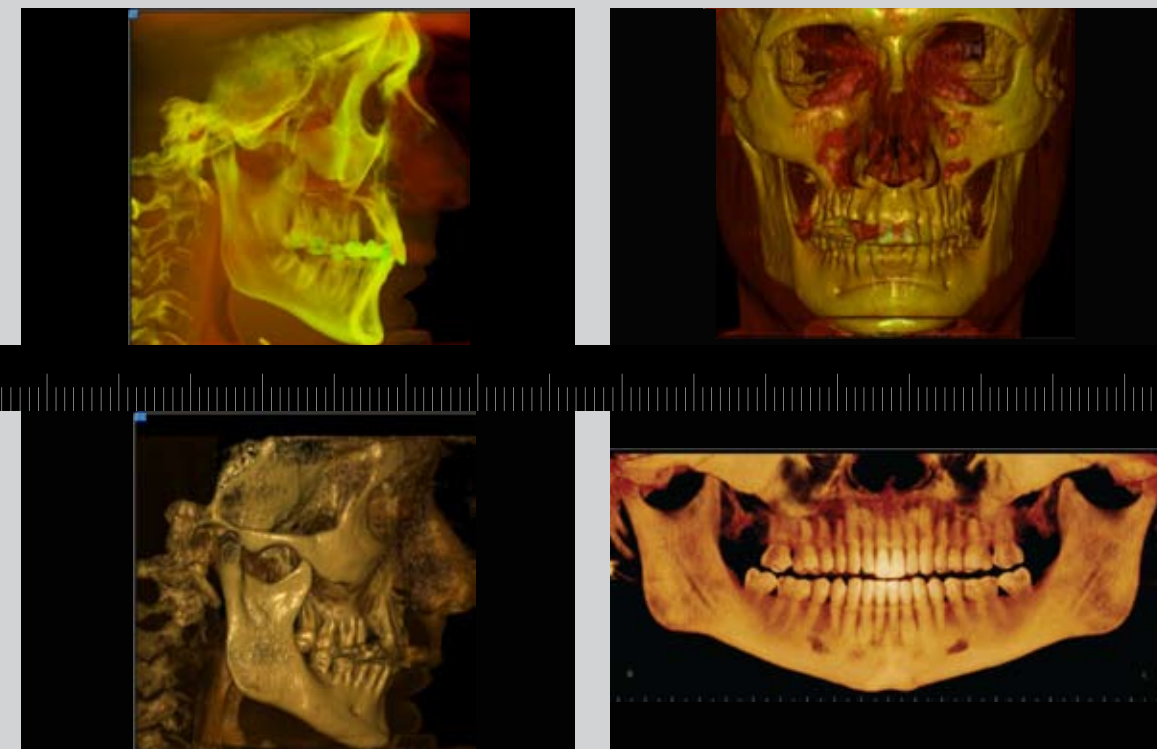
Cone Beam 3D imaging uses a cone-shaped beam to acquire the entire image in a single pass, resulting in more accurate imaging without gaps in information, and with considerably lower radiation exposure.

3D vs 2D Imaging



The American Academy of Oral and Maxillofacial Radiology (AAOMR) prescribes the use of Cone Beam 3D imaging in cases involving evaluation of periodontal, implant, and oral/maxillofacial surgery patients.

One NewTom Cone Beam 3D scan captures a complete dento-maxillofacial record in a single database of digital image information. Various types of 3D images can be created using NewTom NNT software.



Precise 1:1 Scale Imaging

With precise 1:1 scale imaging, NewTom technology eliminates the magnification errors of conventional cephalometric imaging technology. 3D imaging allows the dental professional to identify potentially serious problems, such as airway passage obstructions and soft tissue abnormalities, and helps avoid potential errors due to the image distortion and magnification commonly found with 2D imaging technology. **3D imaging technology is the standard of care for implantologists, orthodontists, periodontists, and oral/maxillofacial surgeons.**

Greater Patient Comfort and Treatment Acceptance

NewTom offers a variety of configurations to suit your needs. Designed around the panoramic experience, **NewTom VG** allows patients (including those confined to a wheelchair) to be scanned in a standing or seated position. **NewTom VG Flex** is the mobile version made for mobile imaging centers. **NewTom 3G** scans patients in a supine position. All NewTom units add a sense of familiarity and comfort for patients, increasing their ability to relax.

NewTom scans provide the practitioner and the patient unprecedented visualization of cranial anatomic information. This leads to better diagnoses and treatment planning and increases patient knowledge. **The result is a more cooperative and informed consent process, validating the need for treatment and improving the partnership between patient and surgeon.**

SafeBeam™ Technology for Patient Safety

Only NewTom systems employ Safe Beam™ technology, the safest technology available for patient and staff. Featured in all NewTom units, **SafeBeam automatically adjusts the radiation dosage according to the patient's age and size.**

This technology utilizes intermittent bursts of radiation only milliseconds in length during image acquisition. Other systems deliver a constant stream of radiation and the same amount of radiation, whether scanning a 300-pound adult or a small child. **Safe Beam technology automatically and continuously monitors system operations, thus eliminating the possibility of unnecessary exposures.**

In conjunction with our patented SafeBeam technology, when compared to other CB3D systems, NewTom VG has a wider range with which it adjusts the X-ray power and quantity (kV=110 and mA=1-20). **As a result, patient exposure is tailored and image contrast remains consistent regardless of patient size or bone density.**

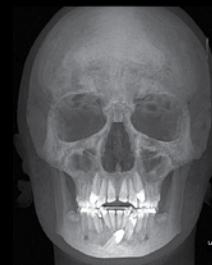


Figure 1



Figure 2



Figure 3



Figure 4



Figure 5

Software Flexibility

NewTom NNT analysis software is the perfect complement to Cone Beam 3D imaging. NNT supports the identification of root inclination, position of impacted and supernumerary teeth, resorption, hyperplastic growth, and tooth structure anomalies. With the ability to mark the mandibular canal, NNT is designed to deliver high quality images that can be placed into user-defined templates, deliverable digitally, on paper, or on film.

NNT gathers any combination of images onto one screen for custom reports. NNT is delivered with a standard viewer, giving other professionals the capacity to view images exported with DICOM 3.0 without having to purchase NNT. Image data can be burned onto CD or DVD for imaging centers and referring doctors, allowing dental and medical professionals the opportunity to easily share images.

Superior Third-Party Compatibility

NewTom images are compatible with most major third-party software vendors as well as guided implant and maxillofacial surgery software.

Figures 1-5 demonstrate the versatility of 3D imaging data that can be imported and utilized in myriad diagnostic and educational modes. Software segmentation adjusts the amount of soft tissue relative to underlying hard tissue by peering "into" the skull. Different software applications permit lifelike overlays to be superimposed on the CB3D scan.

This creates a host of options that aid in diagnosis, treatment planning, pre-surgical analyses, and patient education.

*Easier Image Sharing,
Better Image Processing*

Clinical Case Studies

Implants

CB3D is one of the most effective tools available for evaluating implant sites. 3D images can identify potential pathologies and structural abnormalities with unprecedented accuracy. There appears to be enough height for an implant in both sites, but the cross-sectional view (Figure 2) reveals an atrophic edentulous ridge inadequate in both height and width.

Figure 3 depicts a panoramic view of a mandibular edentulous site. A cross-section (Figure 4) demonstrates that a potential implant site is proximate to the mental foramen, and that a narrow ridge exists in the buccal/lingual dimension with dense cortical bone.

This highlights the thickness of cortical bone and density of cancellous bone. This can affect the appropriate implant to use, implant placement, appropriate implant width, and consideration of “die back” from dense cortical bone. These are additional factors in identifying the location of the inferior alveolar nerve and mental foramen.

Hi Res Zoom

Proper assessment for Implants requires the visualization of all aspects of the mandibular canal. The ability to see small anatomical parts such as tooth roots and periodontal ligaments, as well as any present lesions, is critical in determining successful placement. Only 3D High Resolution imaging produces both the quality and quantity of details necessary to accurately view the canal for secure implant assessment.

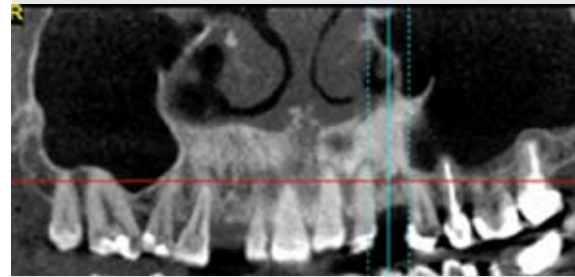


Figure 1

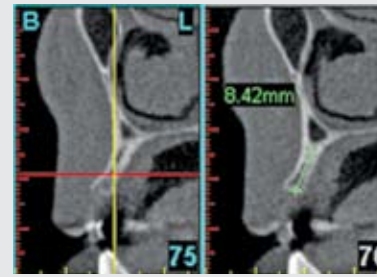


Figure 2



Figure 3

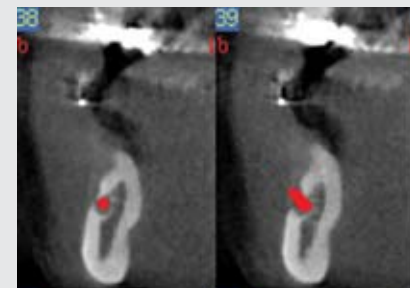
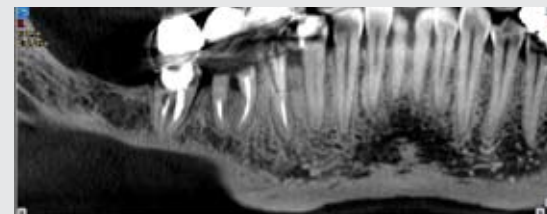
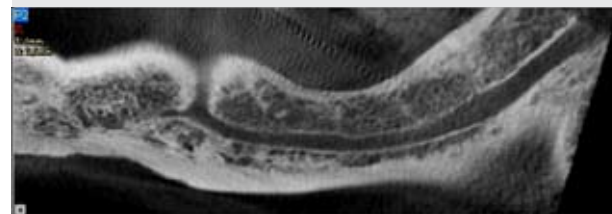


Figure 4

Courtesy of:
Alan A. Winter, D.D.S.



Courtesy of:
Courtesy of Prof. Cavezian
and Prof. Pasquet, Paris

Endodontics

Figure 1 demonstrates residual periapical radiolucency. The patient had root canal therapy, but continued to complain about extreme sensitivities to hot and cold. Endodontic retreatment did not abate the problem. **The CB3D scan revealed that the maxillary second premolar did have a palatal root (figure 2).** It is common to expect two roots and two canals in maxillary first premolars, but it is less common to find two in maxillary second premolars. Once the dentist observed this, successful treatment could be instituted.

TMJ

CB3D takes the imaging of the Temporomandibular Joint to a new level. Sagittal and Coronal views show joint space (FIG 1), arthritis (FIG 1) and pathology.

The 3D image is the clearest picture seen to date of TMJ and Cervical Spine anatomy; for example, calcified stylohyoid ligament (FIG 2), Dens of C2 (FIG 3).

The Panoramic view gives perhaps the most information as a gross screening tool. (FIG 4) We can see differences in condylar height and ramus height (FIG 5), as well as dental pathology.

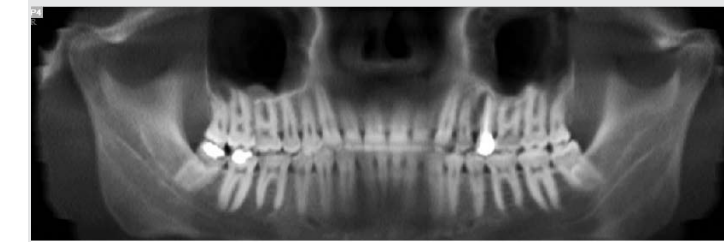


Figure 1

Courtesy of:
Alan A. Winter, D.D.S.



Figure 2

*Accurate Planning,
Successful Treatment*

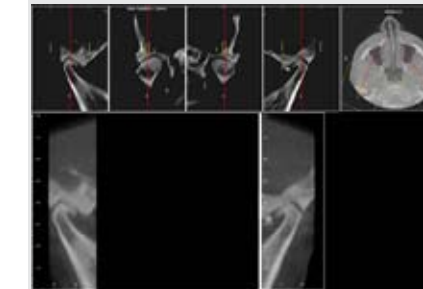


Figure 1



Figure 2

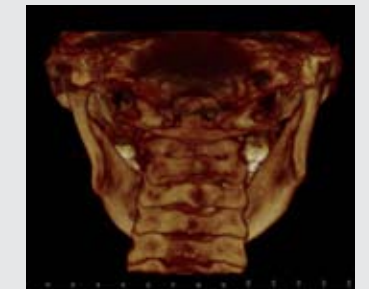


Figure 3



Figure 4

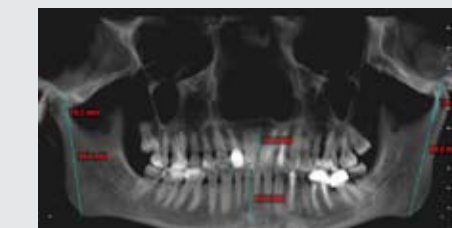


Figure 5

Courtesy of:
Michael L. Gelb D.D.S., M.S
Clinical Professor, New York
University College of Dentistry

Clinical Case Studies

Oral Surgery

Post-Operative Scan; Roots of Impacted Third Molar Figure 1B. Transaxial views #51 and 52 delineate the inferior alveolar canal at the buccal of the root apices, while views #53 through 55 define these apices to be wrapped around the neural canal at the lingual aspect of the inferior border of the jaw. View #55 shows the missing buccal wall, presumably from the previous surgical attempt.

Only a 3D scan can demonstrate the exact individual anatomy, define anatomical structures, and motivate the discussions that lead to patients' understanding of their unique clinical circumstances, ultimately generating a cooperative and informed consent process.

Maxillofacial Surgery

NewTom scans are ideal for post-surgery imaging due to reduced image scatter and lower radiation. This particular reconstruction case is clearly extreme. These High Resolution 3D images (utilizing the MIP and Volume options), are from a post-surgical patient check. Despite the considerable number of screws present, there are virtually no artifacts to obstruct the images.

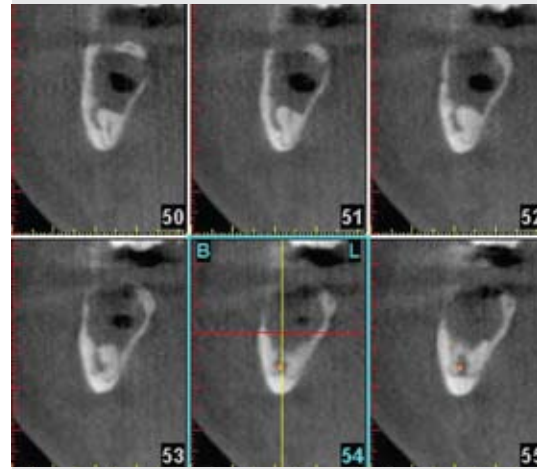


Figure 1B

Courtesy of:
Alan A. Winter, D.D.S.



*Predictable Outcomes,
Better Results*

Ortho Assessment

While various pan-cephalometric machines create adequate images, cone beam scanners produce many types of images, including panoramic (Figure 1), cephalometric (Figure 2), and 3D (Figure 3). Based on the physics of this technology, images are more accurate than 2D dental X-rays and 3D medical scanners. As a result, cephalometric tracings (Figure 4) from dental cone beam scanners can be generated with confidence.

The 3D image in Figure 5 demonstrates an adequate amount of bone buccal to the molar roots, so that palatal expansion will not cause unwarranted gingival recession. Figure 6 demonstrates too little bone and that palatal expansion is either contraindicated, or the patient should be advised that gingival recession could occur. Figure 7 indicates adequate bone.

Maxilla VG HiRes Zoom

Impacted teeth may cause dental problems that produce few, if any symptoms. Only 3D imaging provides a complete picture of the scanned area and allows manipulation of both the angle and slick thickness of the image. There is a significant difference between the demarcation capabilities of plain radiographs vs. 3D images in determining the existence and the root shape of an impacted tooth in the maxilla.



Figure 1



Figure 2



Figure 3

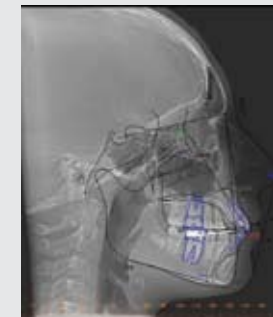


Figure 4



Figure 5

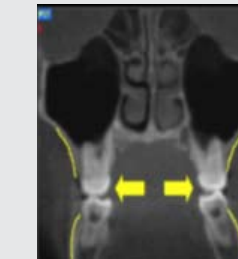


Figure 6

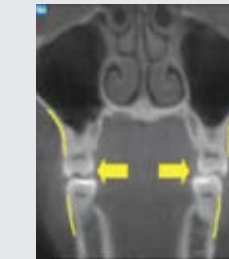
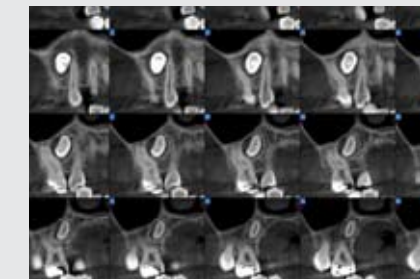
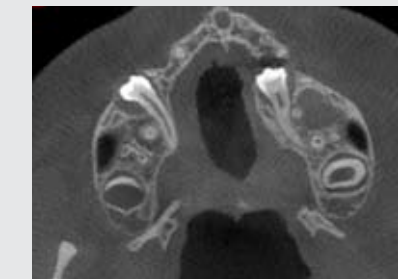
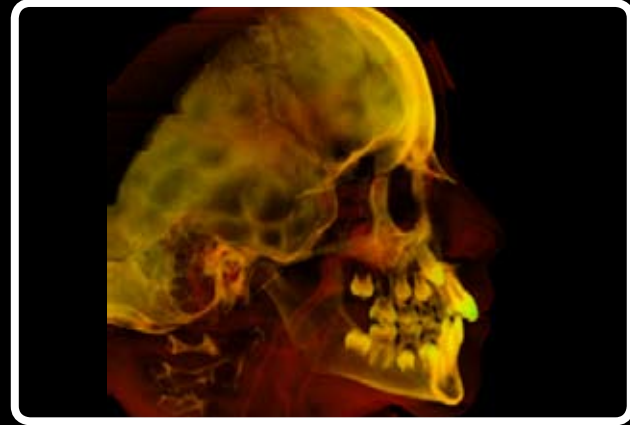
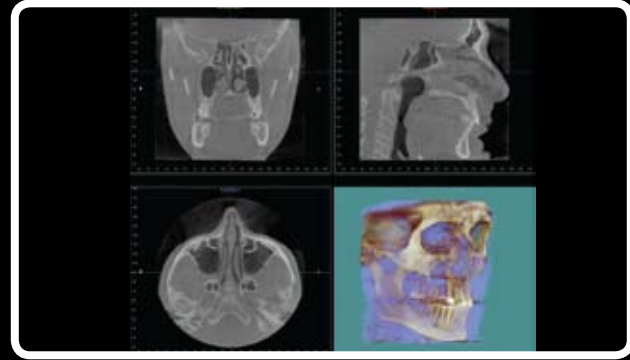


Figure 7

Courtesy of:
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NewTom Benefits

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**Greater Patient Comfort
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**SafeBeam Technology
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**Consistent Images Regardless
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